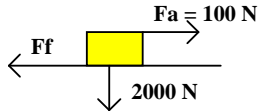


PHYSICS CHAPTER 4 SECTION 3 Worksheet 1

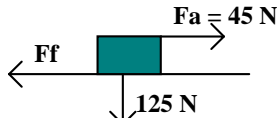
Name _____

Block _____

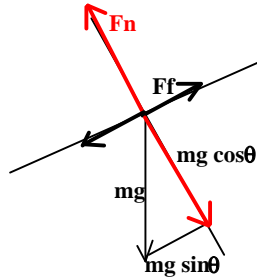
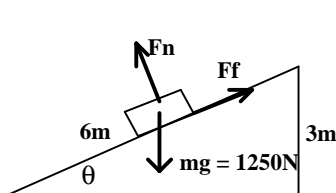
1. A block weighs 2000 Newton's. If a horizontal force of 100 Newton's is required to keep it in motion with a constant speed on a horizontal surface what is the coefficient of friction? (Answer .05)



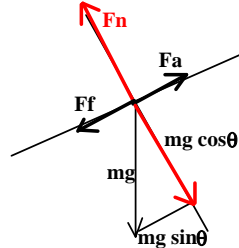
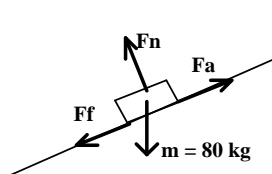
2. In a coefficient of friction experiment, a horizontal force of 45 Newton's is needed to keep an object weighing 125 Newton's sliding at a constant speed over a horizontal surface. Calculate the coefficient of friction. (Answer .36)



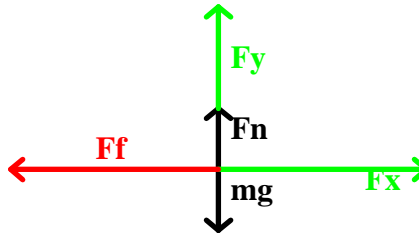
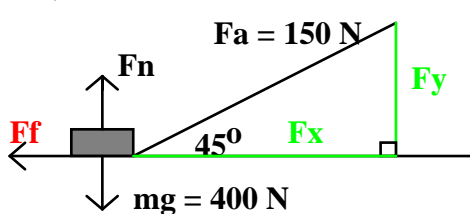
3. A crate weighing 1250 Newton's slides down an inclined plane at a constant speed. The plane is 6 meters long. Its height is 3 meters. What is the coefficient of friction between the crate and the incline plane? (Answer .577)



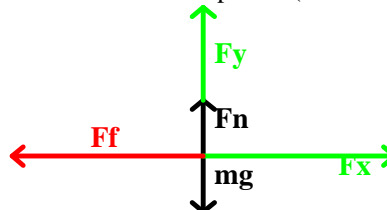
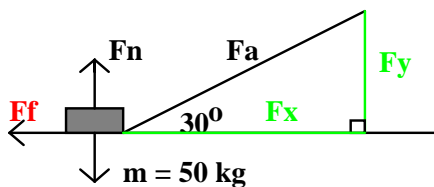
4. The coefficient of friction between a metal block and the inclined surface over which it will slide is .2. If the surface makes an angle of 20 degrees with the horizontal and the block has a mass of 80 kilograms, what force is required to slide the block at constant speed up the plane? (Answer 415.5 Newton's)



5. A crate weighing 400 Newton's is pulled along a horizontal sidewalk at constant speed by a rope that makes an angle of 45 degrees with the sidewalk. If a force of 150 Newton's is applied to the rope, what is the coefficient of friction? (Answer .361)

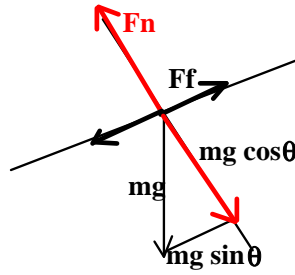
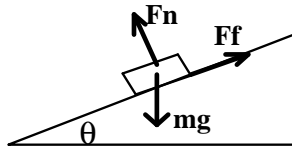


6. A box have a mass of 50 Kilograms is dragged across a horizontal floor by means of a rope tied on the front of it. The coefficient of friction between the box and the floor is .3. If the angle between the rope and the floor is 30 degrees, what force must be exerted on the rope to move the box at a constant speed? (Answer 144.69 Newton's)



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7. If a crate slides down a 10-degree incline at constant speed, what is the coefficient of friction between the crate and the incline? What is the coefficient of friction when a crate slides down a 20-degree incline at a constant speed? What is the coefficient of sliding friction for a crate moving at constant speed down an incline of X degree?
(Answer .176, .364, $\mu = \tan x$)



8. The coefficient of friction between a metal block and the inclined surface over which it will slide is .42. If the surface makes an angle of 33 degrees with the horizontal and the block has a mass of 100 kilograms, what force is required to slide the block at constant speed up the plane? (Answer 878.9 Newton's)
9. A crate weighing 137 Newton's is pulled along a horizontal sidewalk at constant speed by a rope that makes an angle of 65 degrees with the sidewalk. If a force of 50 Newton's is applied to the rope, what is the coefficient of friction? (Answer .23)
10. A box have a mass of 68 Kilograms is dragged across a horizontal floor by means of a rope tied on the front of it. The coefficient of friction between the box and the floor is .6. If the angle between the rope and the floor is 20 degrees, what force must be exerted on the rope to move the box at a constant speed? (Answer 349.23 Newton's)